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Address.

AN ORATION ON THE ART OF MEDICINE DELIVERED AT THE PUBLIC CELEBRATION OF COMMENCEMENT AT HARVARD COLLEGE IN JULY, 1783.

BY EPHRAIM ELIOT

when he received the degree of Master of Arts. There had been no public Commencement at Cambridge since the year 1773 or '4, on account of the war with Great Britain, till the year 1783.

WHEN we reflect on the virtuous care of our pious ancestors, who so early laid the foundation of a society which first enrolled America in the list of literary fame, a pleasing satisfaction fills each liberal breast. Banished from their native home by the tyrannical hands of ignorance and bigotry, the first settlers of New England justly thought the surest means to preserve their dear bought liberty to posterity, was to diffuse the liberal arts, through every rank of a growing commonwealth. Hail! happy seat of Science whose existence can be traced to such an original.

Besides a laudable ambition, the public celebration of commencement tends naturally to excite, each one has here an opportunity to expatiate on the different branches of science most agreeable to his taste. An attachment to the profession I have made my particular study, causes chagrin that at this anniversary has long lain neglected the salutiferous art of medicine. If antiquity gives dignity to a profession, surely this, whose origin can be traced to the earliest records, may justly claim a large proportion.

Scarce had mankind left the sweet abode of Paradise when fraternal discord, which caused the first bloodshed which ever stained the annals of humanity, taught to what evils their race was incident, from which in their former situation they had been entirely exempt. As population encreased, the feuds and contentions of a ferocious multitude governed by no laws but their barbarous will, rapidly encreased the evils of an afflicted world. Regular laws were not yet formed. Each one as is natural to mankind, strove for superiority and excited contentions which frequently ended in blood. To render their misfortunes more severe the lenient aid of surgery could not then be called for; but even the savage minds which had caused, could not behold the distress they had brought on unfortunate sufferers without experiencing the soft emotions of pity. The tender feelings thus gave rise to an art, whose benefits have ever been acknowledged, nor has any rational person in after ages ever ventured to call it in question. Happily, though, in this

infancy of arts, diseases from internal causes were few and simple. The numerous train that now depopulate the world, being chiefly the products of luxury, were then unknown. Yet, simple as was the art, mankind could not conceive it to originate but from the immediate hand of heaven. It gave relief, they paid acknowledgments and testified their sincerity by rearing temples in honor of its greatest proficients. For ages was Esculapius publicly worshipped. Hypocrates received almost equal honors to those of divinity. Celsus and Galen were high in esteem. The upright man, the true physician, by every nation, in every age, has justly been revered. By slow degrees, though cultivated with assiduity, has this salutary art approached perfection. For want of a true physiology, few real improvements could be made in the theory and practice of physic. Till the notable discovery of the circulation of the blood, in the beginning of the seventeenth century, spread the basis of a true theory and laid the foundation on which the noble structure of rational practice has since been raised. Thine ingenuity, immortal Harvey, has placed Great Britain, thy native soil, at the pinnacle of literary glory. The true causes and their symptoms were now unfolded, hitherto attributed to the wild ravages of unnatural ferments and an enraged Archaeus. The greatest improvements have since been made more especially in the treatment of putrid and inflammatory disorders. For a more particular instance I will mention Small Pox which is a mixture of both; now encountered by the most timorous mind without anxiety, which formerly has spread consternation and swept off its millions and left whole countries desolate. A vast deal yet remains to be done. For America may be reserved to put a finishing hand and to bring to perfection what every nation has hitherto exerted itself to raise to its present state.

The means which in Europe have most liberally worked to perfectionate this benevolent faculty have been the peculiar attention paid to render medical education, complete and regular. The universities have been most generously endowed, societies have been established for the promotion of medical knowledge, in particular, which will ever redound to the honour of European governments. The noble foundations of numerous hospitals for the reception of the poor sick and wounded, at the same time they practically exhibit the godlike virtues of humanity and benevolence, afford the finest opportunity for finishing a course of medical studies. It has been too much the case, here and perhaps all over the world, for a person merely to attend the practice of a physician for the space of four or five months, read a dozen volumes, and set out as an accomplished practitioner. But did such men consider the importance of the profession, did they reflect how much it regards the future health; how nearly it regards the lives of their patients, they surely would rather keep to the plough than engage in the practice they are so little fitted for. It does not lay in my power, and if it did, it would be presumption before so many competent judges, to prescribe a plan for an initiation into this profession, but it must be evident to every one, that a person ought to acquaint himself with the history of diseases; in order to which he must particularly attend to the sister branches of anatomy and physiology; before he can administer with safety to the relief of any disorder, he must have an adequate knowledge of Materia Medica and Chemistry. It is equally necessary that he should have studied the laws of economy in the physiological world.

The honest physician will desire to refer to the observation of distant ages, and to examine the opinions of authors of distant nations; he will, therefore, acquaint himself with the Greek, Latin and French languages. These last, though not absolutely necessary, are yet highly conducive to the accomplishment of a professor of this noble art.

But what shall we say of the man? Rather let us turn with disgust from the wretch, who, conscious of his ignorance without education, his only recommendation, his consummate impudence, vagrantly (?) pretends by the power of charms and boasted specifics to drive away diseases which have baffled the skill of the most experienced physician, availing himself of the weakness of his employers, he robs them of their gold and laughs at their calamities. Alas! we weep over poor human nature, when we reflect that there are men so destitute of the first principles of virtue, as thus wantonly to sport with the lives of their suffering fellow creatures.

But a more pleasing prospect opens to view.

and seems to promise better things in this part of the western hemisphere. Even in the midst of war we have seen to rise an academy for the improvement for the arts of peace, over which presides the virtuous patriot,* the vigilant senator, the generous benefactor of this his parent university in whose lists are enrolled the names of men, honours of literature both in America and Europe. Succeeding generations will surely venerate a government which has thus strenuously exerted itself for the advancement of useful learning. Besides the academy already mentioned, with pleasure have we seen the incorporation of another society upon a like liberal plan, which puts the art of medicine on the same footing here, it has many years held all over Europe, which from the judicious choice of its members and its excellent constitution bids fair to vie with any establishment of the kind in any part of the world.

While reciting the noble encouragement given to literature in this part of America, permit me in a perticular manner to pay my warmest congratulations to this university on the late foundation of professorships in the most essential branches of medical science. An anticipation of the future advantages of which institutions, must excite joy in every liberal mind. Filled with the pleasing idea, we eagerly look forward to the time, when the University of Harvard shall be ranked with that of Edenburgh, now the seat of medical sages; when her sons shall be registered in the same catalogue with a Whytt, a Munro & a Cutter We join our prayers, firmly trusting that this shall be e'er long the case. Science in general we hope will now abound as war has ceased, and our brethren are leaving the hostile field, again to cultivate the arts of peace. Harvard, whose generous walls at the commencement of the contest received and sheltered the virtuous band, now hails them with welcome, and invites them to participate with her, the glory of raising America to the summit of literary as they have of military honor. That they may largely reap the fruits of the patriotic bravery which placed the independence of America on a firm basis must be the wish of every honest mind. May peace be spread throughout the world, and "Health, without whose cheerful active energy, no rapture swells the breast," be universally diffused through every land.

* Hon James Bowdoin, first president of the American Academy of Arts and Sciences.

"Daughter of Paean, queen of every joy
"Hygiea! whose indulgent smile sustains
"The various race luxuriant nature pours
"And on the immortal essences bestows
"Immortal youth. Auspicious condescend
"Thou cheerful guardian of the rolling year
"When through the blue serenity of heaven
"Thy power approaches, all the wasteful host
"Of pain & sickness, squalled and deformed
"Confounded sink into the loathsome gloom,
"Thy salutary power averts their rage
"Averts the general bane, and but for thee
"Nature would sicken, nature soon would die.
Armstrong's Art of Health.

[Memo.—The Medical society and the Medical Professorship had been lately instituted at Cambridge.]

Original Articles.

DELAY IN THE SURGICAL TREATMENT OF CANCER.*

By Channing C. Simmons, M.D., Boston.

The following paper was suggested by the report of the committee appointed by the Pennsylvania Medical Society to study the cancer problem. This committee attempted to determine why so many cases of malignant disease were inoperable when first seen by a surgeon. They analysed 400 cases of cancer treated by practitioners throughout the state of Pennsylvania and found that on the average in cases of "visible cancer" the patient delayed 14 months before consulting a physician, and the physician kept the case under observation 12 months before advising operation. In "invisible cancer" the physicians delayed 13 months before advising operation.

The present paper is based on 282 cases of cancer of the breast and uterus; 217 of these cases were observed at the Collis P. Huntington hospital between July 1, 1912, and December 31, 1915. The other 65 applied for treatment at the Massachusetts General Hospital in the year 1917. These two types of cancer were chosen for study, as they represent definite types of tumors with characteristic symptoms, and the possibility of malignant disease arising in these organs is well known to the laity and to all general practitioners.

The average delay in the 282 cases from the appearance of the first symptom to the consultation of a physician was 9.9 months (data on 240 cases). This is a distinctly shorter time than was found to be the case in Pennsylvania. Patients with cancer of the uterus sought

* Read before the Boston Surgical Society, Incorporated, at its twenty-second stated meeting, held at the Harvard Club, Boston, February 4, 1918.

treatment sooner after the appearance of symptoms than those with cancer of the breast; the figures being 5.6 and 12.5 months respectively. On the other hand, 33.3% of the former were deemed inoperable when first seen and only 12% of the latter. It has been impossible to determine the reason for this delay in seeking medical advice with any accuracy. A few definitely said they had not sought treatment as there was no pain. Others stated that they dreaded operation. Still others evidently realized that they had cancer and, believing the disease incurable, dreaded to be told the truth.

The average delay from the first consultation with a physician to the time operation was advised was 2.9 months (data on 209 cases). In the greater number of cases operation was advised at the first consultation, but a few cases that were kept under observation for a long time bring the average up. It is evident that the general practitioners in this community recognize that early surgical intervention gives the only hope of cure in this class of cancer The cases of cancer of the breast were kept under observation longer than those of cancer of the uterus, the figures being 3.5 and 1.1 months respectively.

In the post operative recurrent cases seen at the Huntington Hospital, an attempt was made to determine if the operation had been adequate or inadequate. In many of the cases the operation had been "complete" as judged by the appearance of the scar,—that is the breast with a sufficient amount of skin, both pectoral muscles and the contents of the axilla had been removed. A great many, on the other hand, had been incomplete, and the breast with a small amount of skin and a portion of the greater pectoral only had been removed. In these cases some attempt had also been made to dissect the axilla, but a proper dissection cannot be made without removing all but the clavicular portion of the greater pectoral and by the removal, or at least division, of the pectoralis minor.

CANCER OF THE BREAST.

First Symptom (data on 167 cases).—Tumor was the first symptom in 151 cases, in 12 of which it was first noticed after trauma, and in 6 of these it was accompanied by pain. In 7 cases, the first symptom was pain, but these 13 cases in which pain was present did not consult a physician sooner than the others in which it was not present.

FIRST SYMPTOM.

Tumor	151
Pain	7
Retracted nipple	4
Discharge	3
"Lactation Cancer"	2
Not stated	10

Delay to First Consultation (data on 150 cases).—The average length of time the patient had noticed symptoms before consulting a physician was 12.5 months. (One case had been excluded in making this average,—a cancer arising in a nonmalignant tumor of 44 years duration.) Thirty-three per cent. of the cases sought treatment on the first appearance of symptoms, and 44% inside of 2 months.

DELAY TO FIRST CONSULTATION.
Average 12.5 months.

50	cases or 33%	at once
66	" " 44%	inside of 2 mos.
112	" " 74%	inside of 12 mos.
15	" " 10%	2 to 3 years
10	" " 6.6%	over 3 years

Delay from First Consultation to Operation Advised (data on 129 cases).—The average delay was 3.5 months,—a distinctively shorter time than shown in the Pennsylvania report. In 86% of the cases operation was advised at the first consultation, and in 90% inside of three months. Sixteen cases were inoperable when first seen, 5 refused operation, and in 3 the diagnosis is in doubt.

Delay from Operation Advised to Operation (data on 121 cases).—Operation was performed at once in 84% of the cases, and the average delay was only 1.3 months.

Recurrence after Operation.—Eighty-five of the cases seen at the Collis P. Huntington Hospital were inoperable postoperative recurrence. The recurrence was local as well as general in 76 out of 81 in which the site was stated. The average length of time from operation to the appearance of recurrence was 18.2 months. In 14% of the cases recurrence was not noted till over three years from the date of operation, and in 6% over 5 years. All of these cases had a local as well as a general recurrence. These figures show the fallacy of calling a cancer of the breast "cured" if it has remained well over three years from the date of operation.

LATE RECURRENCE.

3 to 4 years	.....	7 cases
5 to 6 "	.....	2 "
8 "	.....	1 case
10 "	.....	1 "
11 "	.....	1 "

Duration of life after operation (data on 80 cases observed at the Huntington Hospital).—The average duration of life was 31.7 months. Seventy-three per cent. of the cases died within three years from the date of operation.

DURATION OF LIFE AFTER OPERATION.

Died in the	first year	21 cases
" " "	second year ..	20 "
" " "	third year ...	19 "
" " "	fourth year ..	10 "
" " "	fifth year	5 "
" " "	sixth year ...	2 "
" " "	seventh year .	1 case
" " "	eighth year ..	1 "
" " "	ninth year ...	1 "
" " "	eleventh year.	1 "

(Nine cases living with recurrence.)

Miscellaneous data.—A certain amount of information was obtained in reading over the records of the cases treated at the Huntington Hospital, in regard to the treatment of inoperable or recurrent cancer of the breast. The x-ray was used as a palliative measure in the treatment of 36 cases, 20 of whom received distinct benefit. This was shown in the improvement in the patient's general condition, the apparent retardation in the rate of growth of the tumor, and when the growth was ulcerated, the transformation of a foul discharge into a clear serous one. In 14 cases the patient stated that there was no improvement, and in two we have no data.

Radium was employed in the treatment of 7 cases. In four there was no change noted. In two cases radium treatment of what appeared to be undoubted local recurrence, was followed by a disappearance of the nodule. In one of these cases, which has since recurred, the tumor was probably an epithelioma originating in the skin. The other case is still living, but has had other local recurrences.

Three cases were treated from a serum made from the ascitic fluid from a case of carcinoma of the ovary. One of these showed slight temporary improvement. Three cases were treated with iodine, and one with Coley's serum without improvement.

In one case in which excision of the tumor for misroscopic examination was done, followed later by a complete operation, there was a rapid recurrence.

CANCER OF THE UTERUS.

First symptoms and other etiological facts.

First Symptom	
Bloody discharge	67
Foul discharge	14
Irregular menses	8
Frequent urination	1
Pain	11
Not noted	9
Multiparae	68
Primiparae	4
Fact not noted	37
Menopause	
Passed	51
Not passed	31
Not noted	25

Delay from Appearance of First Symptom to First Consultation (data on 90 cases).—The average delay was 6.4 months. This is a shorter period than in the breast cases, but, on the other hand, 30 cases or 33.3% were deemed inoperable when first seen. It is noted in two cases that no vaginal examination was made at the first consultation.

Delay First Consultation to Operation Advised (data on 65 cases).—The average delay between the first consultation and the time operation was advised was 1.6 months. In but one case, where operation was advised, was it refused.

Delay Operation Advised to Operation (data on 53 cases).—The average delay was 1.6 months. Three cases in which operation was advised at the Huntington Hospital and in which a Wertheim hysterectomy was later performed, died of general peritonitis. Two other cases deemed inoperable at the first consultation, improved under radium treatment and hysterectomy was performed later. Both of these cases are living without recurrence 1½ and 2 years after operation, respectively. Twelve cases had some minor operation performed before the appearance of the cancer, such as the removal of a "tumor" of the cervix, curetting, etc. These cases, from the histories, were probably malignant from the first. There were four cases of cancer arising in the cervical stump after a supravaginal hysterectomy for fibroids.

Operation to Recurrence (data on 30 cases treated at the Huntington Hospital).—In 28 of these the recurrence appeared inside of three years, the average time being 10.3 months.

There were two cases of late recurrence, one 5 1-2, the other 7 1-2 years after operation.

Length of Life After Operation in Fatal Cases (data on 41 cases treated at the Huntington Hospital).—Nine of the cases are still living. In the other 32, the average length of life after operation was 25.1 months; 54% of the deaths occurred within 2 years after operation, and 75% within three years.

The following facts in regard to the treatment of the inoperable cases seems worthy of note. Radium is used at the Huntington Hospital in the treatment of malignant disease, but its use is never advised if the case is suitable for operation. The cases of cancer of the uterus treated with radium were all inoperable when first seen or their condition was such that operation was contraindicated. Many were postoperative recurrences. Carcinoma of the cervix is a type of cancer particularly favorable for radium treatment and it was employed in 40 cases, with marked improvement in 31 and no noticeable effect in 7. The results of treatment are not known in 2 cases.

Nine of the 31 cases are at present living, as follows:

Two of the cases were inoperable when first seen, but after treatment with radium they improved, and a Wertheim hysterectomy was performed. Neither case has any evidence of recurrence yet, 1 1-2 and 2 years after operation. The diagnosis was confirmed by a microscopic examination of the specimens.

Three cases of local postoperative recurrence, as evidenced by the appearance of a hard tumor in the vault of the vagina and a bloody discharge, were treated with the disappearance of the tumor. These three cases have at present no evidence of recurrence 1, 2, and 3 years respectively after treatment. The diagnosis was confirmed pathologically in two. Two other cases of post operative recurrence are living, both of which have been much benefited by treatment, but still have evidence of disease.

Two cases that were considered inoperable at the first consultation, are still living, 2 and 3 years, respectively, after treatment was begun. In one of these cases, the tumor disappeared, but later recurred, and the patient now has a vesicovaginal fistula. The other case is much improved, but still has evidence of tumor.

Unfortunately, we have only clinical evidence that certain of these cases were cancer. Formerly at the Huntington Hospital we insisted on removing a specimen in every case before treating with radium, but we have given up the practice because of the danger of spreading the disease. If a specimen can be obtained, however, without danger to the patient, it is always done.

OZONE IN SWIMMING POOL PURIFICATION.

By Wallace A. Manheimer, Ph.D., New York City.

Secretary, American Association for Promoting Hygiene in Public Baths.

The recognition of the necessity for safeguarding the sanitary condition of swimming pools has been followed by the elaboration of various methods of control based mainly upon recognized procedures of water purification. There are, however, certain problems which must be met in swimming pool purification which do not arise in the disinfection of drinking water.

The purity of drinking water is the concern of the whole community. Most large municipalities have special Water Boards, whose sole duty is the maintenance and protection of the water supply. Communities are in the habit of paying large fixed amounts for the maintenance and particularly for the protection and purification of the water. Daily bacterial analyses and careful chemical control are practised by specially trained sanitarians in order to insure safety. An initial thorough purification of the drinking water supply, followed by careful protection of the water until delivered to the consumer, constitutes the substance of all methods employed.

In the swimming pool, initial purification of the water alone is of small value, in view of the fact that each bather adds contamination to the water. Some method of continuous purification, therefore, is necessary. At first attempts were made to maintain in the water disinfecting substances strong enough to destroy infectious material as soon as added by bathers. Obviously larger amounts of chemicals had to be used under these circumstances than in the purification of drinking water, and after the pools had been used for some time, the larger amounts of organic substance in solution and suspension, necessitated the use of a quantity of disinfectant incompatible with

the continued use of the pool. Such a method of pool disinfection, therefore, was seen to be impractical and has since been abandoned.

Evidently if a method of continuous purification is necessary in swimming pool control and especially if continuous disinfection as above outlined is impracticable, recourse must be had to dilution. At first this method appeared to be a mere makeshift, open to numerous objections, but soon a number of exceedingly important advantages developed from its application.

The continuous refiltration and recirculation of the water in a swimming pool effected a great saving of water as well as of fuel used to heat it. The latter economy alone justified the procedure. In many communities, however, water is fairly expensive, therefore economies in its use are highly desirable also. Water constantly refiltered becomes clearer and clearer, as a result of the more efficient removal of suspended matter and of the gradual bleaching and elimination of dissolved coloring substances.

It was soon found that recourse to refiltration alone did not maintain a water of such purity as to constitute a sufficiently reliable method of swimming pool control. Various methods of water purification were coupled with the process of refiltration, many of them successful enough from the standpoint of their bactericidal action, but inefficient from the point of view of practical application.

The use of the halogens (calcium hypochlorite, sodium hypochlorite and anhydrous chlorine) notwithstanding their successful application to the purification of large water supplies, proved very vexing in the disinfection of swimming pools.

The large quantity of organic matter in a swimming pool necessitates a correspondingly large amount of disinfectant, resulting frequently in the production of a water of disagreeable taste and odor. The determination of a minimum quantity of chemical to be used in a pool proves impracticable, because of the fluctuating load of bacteria and organic pollution. In order to secure a sufficient reduction of bacteria under average conditions, a pool must be treated with an excess of disinfectant which operates seriously to reduce the patronage of the pool, in consequence of which the chemical is usually added to the pool in such minimum doses as to be of little, if any, value.

While it is true with most waters that careful control of the quantities of chemical added would result in water of good sanitary quality, such control in the majority of swimming pools is not practicable and hardly worth the trouble in others, in view of the excellent automatic method recently introduced.

Chemicals other than the halogens, notably copper sulphate, have been recommended by a few investigators. The quantities recommended for use, however, have proved ineffectual after long and careful series of experiments, and larger quantities have produced waters so astringent as to preclude their use.

Recently ozone* has been applied to the purification of swimming pools and has proved not only efficient as a disinfectant, but practical in operation. Ozone is a powerful oxidizing agent which, when properly added to the water, completely destroys all bacteria as well as removes tastes and odors. From 40% to 70% of the organic matter in suspension and solution in water is destroyed through proper initial treatment with ozone. In refiltered pool water it is possible, by repeated action, to secure an even greater percentage of reduction than that mentioned. The distribution of the organic matter and of the coloring matter in suspension and solution renders the water more transparent, thereby enhancing the appearance of the pool while at the same time reducing the hazard of accidental drowning.

The application of ozone to the purification of drinking water is of long standing. In France there are twenty-six large municipal plants where ozone is used. The St. Maur plant in Paris delivers 24,300,000 gallons of ozonized water daily, the Bon Voyage plant supplies Nice with 6,480,000 gallons daily, the plant at Villefranche supplies 7,020,000 gallons daily, and the plant at Petrograd supplies 14,040,000 gallons daily, to mention only some of the largest. Germany, Spain, Russia, Roumania, many South American Republics, and other countries have successful ozone plants. There is, therefore, nothing novel or startling in its application to swimming pools.

The technical details connected with the process of adding ozone to the water, need not be reviewed here. Reference may be had to the

* U. S. Public Health Reports, March 1, 1918; Journal A. M. A., June 29, 1918. See footnote following.

papers already published on this subject.* Suffice it to say that ozone is generated in the customary way from atmospheric oxygen by passing dry air over a silent electrical brush discharge, and then passing the ozonized air into the bottom of a tall tower containing the swimming pool water. The process here so briefly described, is a distinct engineering problem in every case, the solution of which, if attempted by the amateur, particularly one not acquainted with the handling of ozone, may result in dismal failure. On the other hand, a properly designed system will give continued satisfaction, from the points of view of efficiency in water sterilization and of economy and reliability in operation.

A careful study of the cost of operation of an ozone plant has shown it to be one of the most economical methods so far applied. Where alternating electrical current is available, a daily electrical consumption of 2 K. W. is all that is required to operate an ozone plant of sufficient capacity to disinfect a 60,000 gallon pool. The total cost has been computed to be between 11c. and 15c. a day, figuring electrical current at from 5c. to 7c. per kilowatt and allowing one cent a day for the cost of occasionally replacing the calcium chloride in the air drying chamber. Where direct current only is available, conversion of the current to the alternating type is necessary, entailing an additional cost of from 7c. to 14c. a day.

One of the chief features of an ozone purifying plant in a swimming pool, is its automatic character. Occasional cleaning of the ozone tubes and infrequent replacement of calcium chloride are all that is necessary. Furthermore, ozone can be used in excess without producing objectionable taste or odors in the water, a circumstance of considerable importance, since it allows of adjustment of apparatus to supply a little more ozone than is necessary to destroy the maximum load of organic matter which can be expected in a given case. This adjustment, subsequent to a proper design of installation, results in a permanent operation of the pool in an automatic way, involving no technical control. With untrained attendants, therefore, a pool purified by ozone can be maintained in a safe and sanitary condition at reasonable cost, advantages which no other method so far suggested, has been able to offer.

* Mind and Body, January, 1918; U. S. Public Health Reports, March 1, 1918; Journal A. M. A., June 29, 1918; Medical Review of Reviews, July, 1918.

The low cost of the process, the automatic application, the reliability and ease of control and the destructive effects on bacteria, organic substances, and coloring matters in the water, strongly suggest the adoption of ozone as a standard method of swimming pool purification.

THE NEW TREATMENT FOR PARALYSIS AGITANS.

BY WALTER B. SWIFT, M.D., BOSTON.

SINCE it is pretty generally agreed that paralysis agitans is practically incurable, anyone claiming for a new method of treatment that it will lead to complete cure in the majority of cases would have to carry a heavy burden of proof. No such claim is put forward for the treatment which it is the business of this paper to outline. In so distressing a disease, however, alleviation in even a small degree is a desideratum, and it may be definitely asserted that the following treatment, if methodically and persistently carried out, will bring relief to most cases, although, perhaps, in varying degrees.

Three cases of definite improvement may be mentioned here to show what the method has actually accomplished. One case complained of a very severe tremor and of great difficulty in getting to sleep at night. Six months of treatment reduced the tremor perceptibly and made it possible for her to get to sleep in fifteen minutes. After only three weeks of treatment, a man overcame his tremor to such an extent that he could read his newspaper while holding it in his hands,—a thing impossible to him before. A third patient, after three months of treatment, reported that her tremor was reduced by about one-third. Obviously, none of these cases shows a cure, but the improvement in each case has been sufficient to win the lasting gratitude of the patient. Further study of the method might well bring better results. At any rate the method seems to be worthy of consideration.

What, then, is this method? It consists solely in the muscular movements of a simple nature, gone through very slowly, at the rate of about one foot to the second, with strong mental concentration upon the movement while it is in progress. First come movements of the right foot, then of the left, then of the legs successively, then of the right and left arms

in order, then of both arms, and finally of the hands and fingers. The object is not muscular development but rather development of nervous control over the muscles. The movements should be regular and they should be definitely prescribed, but it is not necessary to outline any special form for them in this place because they can easily be invented by anyone.* No particular value need be attached to any special set of exercises, because the nervous control is the same in one as in another.

There is one specific direction, however, that must not be overlooked, and that is that all the exercises must be taken very slowly, at the rate of about one foot of movement to the second, if any benefit is to result. This caution is given as the result of a rather extensive experience with both successful and unsuccessful cases. The successful patients have been those who have taken the exercises slowly over a considerable period of time. Those who have failed to derive an appreciable benefit have been those who, though beginning slowly, have gradually grown tired of the monotony and "speeded up." It seems likely that the essence of the entire treatment lies in this slowness of movement, and perhaps also in the mental concentration which should accompany the movement.

It is natural to ask whether the improvement which has resulted from this treatment can be explained. In answer to such a question one may say that three suppositions seem possible. The improvement may be ascribed to muscular development, to therapeutic suggestion, or to the development of some central inhibitory nervous control, working automatically to prevent the familiar movements of paralysis agitans. A consideration of these theories will center attention upon the necessary slowness of the movements and will show why other methods do not bring the desired results.

First as to the theory that improvement is due to muscular development. It is obvious that the exercises must result in some slight development of the muscles if they are performed several times a day for a number of weeks or months. But if muscular development alone were sufficient to correct this tremor, the same result would be obtainable from other processes of muscular development. I see no reason to assert that this particular method of developing the muscles by very slow movements is sufficiently different from gymnasium methods to cause all the difference noted, if indeed the improvement is due to a muscular growth. The consideration, however, which seems to dispose completely of this view, is the fact that when the speed is increased beyond a certain point there is no benefit resulting.

The second theory ascribes the benefit of these exercises to suggestive therapy. This theory is more difficult to attack. We know that a great many patients, even chronic cases, improve a little under suggestive therapy. Even the moving from one ward to another or the appearance of a new doctor often causes noticeable improvement. But the benefit that is derived from these exercises is not of that type. It is rather an automatic cessation or diminution of the tremor. No one accustomed to seeing patients outgrow functional disorders under suggestive therapy would class this improvement under the same head. In the use of suggestive therapy one gets improvement on a large scale, often suddenly, sometimes almost immediately. I have known a case of hysteria almost entirely cured by a single treatment by this method. That is not the sort of improvement which is observed in the case of paralysis agitans under this form of treatment. The improvement we do get is, on the contrary, a slow, gradual growth. This growth, as I have said, seems to be dependent upon the rate of speed at which the exercises are taken. It seems to me, therefore, although the distinction is by no means an easy one to make, that there is evidence enough to exclude suggestive therapy as a cause of the improvement.

The last theory is that this improvement results from centrally developed inhibitory power or influence in the brain which acts automatically to control the tremor more or less. When one considers that the patients go through a set of evenly controlled motions, with concentrated attention, several times a day for weeks or months, one can easily see, even if he has had no actual experience with such cases, that some degree of nervous control must be developed in them. In fact, when I myself have gone through these exercises five or six times, I have felt in my own nerves and muscles an un-

* For outline of the Swift Exercises see previous article, "A New Treatment for Paralysis Agitans," Journal A. M. A., Dec. 16, 1916, Vol. lxvii, pp. 1834, 1835, by W. B. Swift.

wonted steadiness. If anyone wishes to know just what is meant, he should try the experiment himself.

The purpose of these exercises is to develop just this feeling of pervading steadiness to such a pitch that it endures as a constant feature of the patient's physical life. By my own experience with them and by my observation of patients' use of them I am led to believe that these exercises do build up a *central inhibitory control.* It seems to me that the type of exercise would suggest that much in itself, when taken together with the great significance which must be attached, as has been seen, to the pace at which they are gone through.

I conclude, then, that these exercises, when slowly performed, provide a means of developing some central inhibitory control which quiets, in a measure, the involuntary motions and tremors characteristic of paralysis agitans.

TYPES OF MEN AS OBSERVED AMONG RECRUITS.

BY J. MADISON TAYLOR, A.B., M.D., PHILADELPHIA,

Professor of Applied Therapeutics, Temple University, Medical Department, Philadelphia.

EXTRAORDINARY opportunities are offered by the examination of the millions of young men, candidates for military service, to learn significant facts obtainable in no other way. Among these facts are types of conformation, of disposition, of temperament, of character, of capabilities, of adaptation, of endurance, of maintenance of physiologic and of psychologic poise, of nutritional balance and the like.

The population of America being exceptionally varied in its origins extraordinary opportunities are thus afforded to get a critical line on, or purview of, practical problems in anthropology, racial admixtures, hybridism, stability of racial strains, susceptibilities to environmental influences, to fatigue and anxiety stresses, to infections and to recoverability from infections, to variants in the manifestations of devolutionary agencies, hereditary and environmental.

Studies should of course, if possible, embrace those individuals selected from those rejected. The difficulties of such an appraisement need not be so large if a comprehensive yet economic system of tabulation was adopted. However, it is probable that only those who are accepted could be subjected to such assessment and only the outstanding phenomena till the importance of the census becomes appreciated.

The primary examiners at the recruiting stations could not be expected to do much of this work, although it is entirely possible some facts of inestimable value could be learned and recorded even here by use of special cards. Among the rejects these points could be followed up, and among them many facts of greater practical as well as scientific importance might be learned than from the more perfect accepted individuals.

Already the special examiners of recruits are making important observations which could readily be rendered of yet greater value if amplified in certain particulars desirable for statistics.

Among these special examiners are those of the mental status which could readily include on blank forms associated anomalies of conformation, type, functional status of the ductless glands. Those who examine for evidences of infections, T.B., and syphilis, could add to their observations facts which might lead to amplification of our knowledge of the susceptibilities to, or capabilities of, recovery from infections. So of experts in cardio-vascular renal disorders, a few associated or correlated facts added would afford enormous enlightenment in essential directions.

The orthopedic experts could contribute much to a more comprehensive knowledge of the origins of deformities, of variants in tissue tone, of susceptibilities in the realm of development and of metabolic and of endocrinologic data. Here we have the realm indicated by Major Joel E. Goldthwait as "the challenge of the Chronic Patient," the indicia of anomalies in growth forces, developmental peculiarities, as shown not only in conformation but in body chemistry. Such matters have by no means become of common interest or knowledge. Until they have become so clinical results must be narrowed in essential directions. Much of the data existing is in such form and place of record as to escape attention. It is also lacking in systematic presentation, in symmetry, in comprehensiveness. Let us have aid from the present observers in the practical field afforded by military opportunities.

Society Report.

ABSTRACT OF THE PROCEEDINGS OF THE FORTIETH ANNUAL CONGRESS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, HELD AT ATLANTIC CITY, NEW JERSEY, MAY 27-29, 1918.

(Continued from page 606.)

A CARCINOMA OF THE EPIGLOTTIS AND ROOT OF THE TONGUE REMOVED BY THE SIMPSON RADIUM NEEDLES, WITH A DESCRIPTION OF A NEEDLE-PLACING INSTRUMENT.

Otto T. Freer, M.D., Chicago.

Dr. Frank Edward Simpson of Chicago in 1914 devised short, hollow needles one and one-sixteenth of an inch long and one-sixteenth of an inch thick, made of steel and platinum plated with gold, the cavity of the needle being packed with twelve millimeters of radium sulphate, which is sealed within the needle after the detachable eye portion of the needle has been screwed down upon its hollow shank. The wall of the hollow needle is three-tenths of a millimeter thick—thick enough to filter out the irritating alpha and softer beta rays, while permitting the hard beta and gamma rays to pass freely through the wall of the needle.

The needles are stout enough to endure the firm grasp of a needle holder for their introduction into the tissues.

With several Simpson needles the effective so-called crossfiring of radium rays may be produced—that is, instead of the radium rays proceeding from a single source in the center of a growth it is easy to place a number of needles at its periphery as well as in the center, so that not only is the growth evenly influenced by multiple radiation, but the apparently healthy zone about the tumor is deeply penetrated by the rays, so helping to prevent a local return of the growth.

A valuable quality of the needles is their comparatively easy insertion, so that only occasionally, where a tumor is tough and resistant, is it necessary to place them in a preliminary knife cut, for as a rule they may be directly thrust into the growth.

It is generally agreed that malignant tumors should be destroyed at one sitting by one very large dose of radium. This is not only done in order to minimize the danger of metastases risked by waiting for the effect of lesser doses at intervals, but it is experience that the effect of a single large dose is proportionately greater than that of the sum of smaller ones that equal it in quanity. It has also been found that a tumor is less influenced by later doses than by the first one, a species of tolerance being established for radium. The demand for a single completely effective large dose of radium rays is filled by leaving the Simpson needles in place from nine to twelve hours. Their efficient screening prevents the undesirable integumental burns that were so common before it became known that the soft beta rays and the alpha rays must be filtered out.

The difficulty in accurately inserting the needles with forceps in this case, the roughening of the surface of the costly needle by the blades and the annoyance caused by the dragging thread that trailed the needle, led the writer to construct a needle placer for inserting the needles, a device which in the case of a carcinoma of the laryngopharynx just treated has permitted their exact introduction into the flesh with an accuracy and ease that, he thinks, will make it possible to needle even intrinsic carcinomas of the larynx by the indirect, mirror method of laryngoscopy, a method so much less distressing to the patient than direct or suspension laryngoscopy.

OBSERVATIONS ON PNEUMOCOCCUS INFECTION OF NASAL ACCESSORY SINUSES.

Cornelius G. Coakley, M.D., New York.

One hundred and eighty-eight cases were observed. The acute ones with the history of a duration of one month or less numbered one hundred and nine. The remainder were chronic.

Pneumococci were present in 44% of the acute cases, and in most of these they were the sole organism. In the chronic cases this organism was found in but 13%.

These results seem to warrant the inference that in acute inflammations probably half the cases might be due to auto-infection, while the other half were due to infection from some outside source.

In the chronic cases the larger number were accompanied by autoinfecting organisms.

The author records a case of pneumococcus tonsillitis followed at an interval of two weeks with a pneumococcus infection of the left antrum. In the second case both antra were suc-

cessively involved, one at a later period than the other, with a penumococcus in each instance.

The third case had beginning infection in the larynx and trachea, secondarily involving his antrum, with pneumococci.

The fourth case had a bilateral maxillary sinuitis; there was a pure culture of the pneumococcus in both. Signs of consolidation were found at the base of the right lung next day, and antipneumococcus serum was administered, followed by a chill, rising temperature to 106°, and an immediate drop in the temperature with pneumococcus in his sputum, without any further attention to his antra, as the patient was too ill to be treated. Spontaneous recovery followed.

The writer asks what rôle the serum played in curing his maxillary sinuitis?

The fifth case recorded was the wife of the preceding patient, with pure culture of pneumococcus from the discharge, evidently following infection from her husband.

The sixth case was one of an acute otitis with pure culture of the pneumococcus arising from an infection of the same character in the left antrum.

From a study of this series of cases the writer feels justified in drawing the two following conclusions:

First. Pneumococcus infection of the nose and its accessory sinuses does not in any large percentage of cases result in a pneumococcic infection of the lungs. Only one of our cases developed pneumonia.

Second. There would seem to be direct evidence that in one of the cases the infection, pneumococcus I, was transferred from husband to wife.

We hold that most severe acute rhinitis attacks are the result of infection, either with autogenous or foreign bacteria or viruses. The presence of pneumococcus rhinitis and sinuitis during the stage of profuse secretion, accompanied by coughing and sneezing, must be a fruitful source of disseminating pneumococci, some of which may invade only the upper air passages of the victims of the infection, while in other patients, finding a suitable soil in the deeper air passages produce a pneumonia. There is abundant evidence that pneumonia is infective, and may not one source of infection be in these pneumococcic head colds?

DISCUSSION.

DR. CLEMENT F. THEISEN, Albany: Some time ago I published a paper on "Pneumococcus Infection of the Nasal Cavities in Children," which was based on a small epidemic that I witnessed in the Child's Hospital in Albany. In these cases the children ranged from four to fourteen years of age, and numbered not over half a dozen. We obtained in all the cases the pneumococcus from the nasal secretion. In two cases there was a marked exophthalmos with serious ethmoidal and frontal involvement. These two children were operated on and made good recoveries. We had one death, in a child of four, with sinus involvement and a high temperature. Pneumococcic serum was administered without effect. In all the cases there was profuse nasal discharge, very high temperature and very serious involvement of the cervical lymphatics, and the pneumococcus was obtained in pure culture from the nasal secretion.

DR. HENRY L. SWAIN, New Haven: I had three cases this winter in which the pneumococcus Type I was found, and in which the immediate onset of pneumonia necessitated the calling in of an internist, in order that the necessary attention might be given to the chest condition, so that I could not follow the case for a number of days. Two of the three cases recovered and one did not. The sinus condition absolutely cleared up within three days after the administration of the pneumococcic serum in those that recovered.

DR. CORNELIUS G. COAKLEY, New York City, closing: The only case in which the question of giving pneumococcus serum of Type I was the one in which the serum was very efficacious. I was surprised to find that from such a severe attack the patient recovered from his sinuitis without further treatment. Of course, they might have recovered without it. Some recover without treatment.

THE DIAGNOSIS AND PROGNOSIS OF HYPERTROPHIC SPHENOIDITIS.

GREENFIELD SLUDER, M.D., ST. LOUIS.

Of the utmost importance is the kind of light to be used in postnasal examinations. Sunlight would be ideal were it not for the great heat conveyed, which renders it useless.

The light made by Leitz under the name of the "Lilliput Arc Lamp" is as satisfactory as

the sun and always available. The carbons meet at right angles and give a brilliant white light, which is condensed into a pencil by a convex lens. It is a different light from that of the arc lamp used in street illumination. In burning, a little white smoke is given off, which condenses to a white powder, indicating that the carbons have been impregnated with a zinc salt, which may be the way in which the white light is made. Leitz declines to tell the process of manufacture.

The advantages of a proper light are obvious, in that diseased conditions, as also the presence of a small amount of pus, are the more readily recognized. At times the Holmes naso-pharyngoscope is of the utmost help by virtue of the right angle vision.

The author presents a clear description of the normal post-ethmoid-sphenoid district.

All changes in these parts should be carefully noticed, because a very slight surface change is often accompanied by much more advanced and serious change in the deeper parts, as is often shown by the finding of polyps within the cells at the time of operation, no evidence of which was previously recognized there. Patches of inflammation may often be found with the pharyngoscope within the cells, which are very pernicious and disastrous, according to their location, for example, upon the optic canal.

He does not believe that the postethmoid-sphenoid operation is free of danger in the hands of any rhinologist. He has seen the eye, which it was intended to save, lost for the vision it had at the time of operation, and he had learned of death following a number of these operations. Sometimes a sphenoid sinus makes the inner part of the canal, and sometimes the postethmoid makes it, and there is no way to tell in a patient at the time of operation which it is, hence the sure practice is to do the combined operation.

The distribution of the hyperplastic process here is of great interest and various.

The presence of pus is not the only indication of diseased conditions here, as there may be active inflammatory conditions without it. The author calls attention to the appearance of the epithelium under different conditions. With a proper light, when pus is present it is almost invariably greenish yellow or yellowish green, whereas the opaque epithelium is white or very slightly bluish white.

This form of sphenoiditis is rarely unilateral. Anomalous anatomic arrangements of these parts exist, and failure to bear these possibilities in mind may defeat our best technical efforts, and these anomalies are described. The diagnosis becomes exceedingly difficult in children.

As to prognosis, the infection "coryza" in these parts may be of grades so slight that the patient is not cognizant of it and still make the ocular or the painful lesions. The acutely inflamed area may, however, be seen with the pharyngoscope after the cells are opened. And for the second class of cases the prognosis is also for relief, but it must needs be slower and less complete, although in the long run the result is preëminently worth the effort it took to get it. These cases have seemed to be less disturbed by coryzas.

The postethmoid-sphenoid radical operation, properly performed in the first class of cases, almost always gives a technical result that remains satisfactory—that is, the openings of the cells remain as the operator makes them. In the second class they almost always get smaller, and very frequently close up completely, and so must be made again, often several times.

In later life an involution of the hyperplastic changes—rarefying ostitis—takes place, sometimes beginning about the fiftieth year and sometimes later. The author has seen this in unoperated cases accompanied by corresponding cessation of symptoms (in one case an ophthalmic migrain).

(To be continued.)

American Medical Biographies.

RICHARDSON, MAURICE HOWE (1851-1912).*

Maurice Howe Richardson, Boston surgeon, was born in Athol, Mass., December 31, 1851, and died in Boston, July 31, 1912. He was the son of Nathan Henry and Martha Ann Barber Richardson, of New England descent. When he was eleven, the family moved to Fitchburg, where he graduated at the High School; he graduated at Harvard A.B. in 1873; and the following year taught in the Salem High School, where he studied with Dr. Edward B. Peirson for a year, and then entered

* From the forthcoming "American Medical Biography" by Dr. Howard A. Kelly and Dr. Walter L. Burrage. Any important additions or corrections will be welcomed by the authors.

the Harvard Medical School, second year, and graduated M.D. in 1877. On July 10, 1879, he married Margaret White Peirson, daughter of Dr. Peirson, and one of his former High School pupils. They had four sons, among whom were Drs. Edward Peirson and Henry Barber and two daughters.

Dr. Richardson began his career as a private assistant to the demonstrator of anatomy at the Harvard Medical School, after resigning the position of surgical house officer at the Massachusetts General Hospital. His great desire was to be a surgeon, and the most direct route to practice was through the dissecting room. He was later demonstrator, and then assistant professor of anatomy. He served under Oliver Wendell Holmes, who resigned as professor of anatomy in 1882. In 1895 he became assistant professor of clinical surgery, and in 1907 he was made Moseley Professor of Surgery.

He was surgeon to out-patients at the Massachusetts General Hospital in 1882, and visiting surgeon in 1886. In 1911, when a rearrangement of the surgical staff was made with continuity of the service he was made surgeon-in-chief, a position which he held up to death.

During his early practice, he was surgeon to the Carney Hospital and consulting surgeon to other hospitals in Boston, and in various New England towns. His work outside of anatomy lay along clinical lines, and his surgery grew out of his superior anatomical training and experiences as a surgical assistant. His orignality lay in his ready adaptation of sound surgical principles and extensive anatomical knowledge to the many new problems created by the antiseptic era, which dawned as he entered the field. When he began his work abdominal surgery meant little more than an occasional ovariotomy, and the surgery of the appendix, the gall-bladder and the stomach did not exist.

He wrote from the fullness of large personal clinical expriences, and as he worked and wrote, abdominal surgery grew *pari passu*. He frequently attended medical societies, and wrote for journals, covering a wide range of subjects. He was original, incisive, and notably frank in acknowledging mistakes.

One of his first papers describes a gastrotomy in 1886, for a set of false teeth low down in the esophagus. He opened the stomach and pulled the plate out through the cardiac end and through the stomach, the first gastrotomy for the removal of a foreign body in the esophagus.

In 1887 he reported 15 laparotomies; in addition to the case just mentioned, 9 were ovariotomies.

When R. H. Fitz pointed out the relation of the appendix to perityphlitis and peritonitis, Richardson was quick to see its surgical importance and became an early champion of operative treatment; his relations with Dr. Fitz remained intimate through life. In 1892, he was able to draw conclusions from 81 of these cases, 40 of which were treated by operation; in 1894 he had had 181 cases, and in 1898 as many as 757. From the study of his acute cases, he was early convinced of the need for the removal of an appendix the subject of previous attacks. His numerous papers on the appendix educated the profession in the diagnosis and the demand for early surgical intervention.

Numerous papers also testify to his keen interest in diseases of the gall-bladder and biliary system. His first successful cholecystotomy was published in 1889. A second paper, in 1892, reported 10 operative cases. From this time on, the diagnostic and surgical difficulties presented by these cases formed the subject of repeated communications, which remain a substantial part of the foundation on which surgery of the biliary tract rests today.

His various papers cover nearly the entire range of abdominal surgery, as well as other surgical subjects.

Papers may be particularly mentioned on the stomach, pyloroplasty, pylorectomy, and especially a successful total gastrectomy (1898); on pancreatitis and pancreatic cysts; on intestinal obstruction, intestinal resection, lateral anastomosis, and idiopathic dilatation of the colon; on omentopexy; and on tuberculosis of the mesenteric glands; on nephrectomy, nephrorrhaphy renal stone; intra-peritoneal cystotomy, ureteroplasty, ureteral implantation; on ovarian tumor with twisted pedicle, extra-uterine pregnancy, the surgical treatment of fibroids, and cancer of the uterus. He was at one time much interested in cranial and nerve surgery, shown by writings on brain tumor, removal of the Gasserian ganglion, nerve suture, and spasmodic torticollis. Other subjects were; diverticulitis of the esophagus, with two cases

of successful resection, cancer of the breast and acute and chronic empyema.

Later studies deal more with surgery in its wider aspects, its dangers and responsibilities; the relation of the surgeon to his patient, and his profession; the importance of an alert conservatism: in these he sounded a note of warning to a profession flushed by its successes in the new fields.

A systematic treatise on surgery of the abdomen was planned and partly worked out, but never finished. His most comprehensive articles were a contribution to Park's Surgery by American Authors, 1895, on "Surgery of the Abdomen and Hernia," and to Dennis' System of Surgery in 1896 on "Surgery of the Alimentary Tract."

He had a large practice, and never sought to make life easy, being ever ready to respond promptly to any call to operate in nearby towns or at a distance, trips both time-consuming and exhausting. He subscribed to and used the Corey Hill Hospital, Brookline, in 1904, but in the later years he distributed his patients in several small hospitals. Added to a strenuous private practice were hospital practice and teaching in the Medical School, and the result was that day after day was spent in a vain effort to catch up with his engagements; writing was done customarily in the early morning, or at intervals between operating.

As a teacher, his talents lay in clinical lectures and demonstrations, and he was at his best demonstrating a case, or an anatomical region, or a method, before students, illustrating by rapid accurate blackboard sketches, often using both hands. His personality inspired and stimulated students, and few will forget his insistence on the responsibilities and dangers of surgery, and on the importance of exact knowledge of anatomy and living pathology.

Dr. Richardson, as a member of the American Medical Association, was Chairman of its surgical section in 1904, a member of the Southern Surgical Association, and President of the American Surgical Association in 1902, and a charter member of the International Surgical Society.

Physically he was well adapted to the strain and demands of his life. As a young man his strength and endurance were remarkable, and were well shown by his walking in a single day from Fitchburg to the top of Monadnock Mountain and back—nearly sixty miles; he swam across Vineyard Sound, and also the nine miles from Salem to Magnolia.

His chief relaxations were music and outdoor pursuits. He took up successfully the piano, the flute, the 'cello, and the bassoon. Later years limited his playing to the piano during evening visits to the Corey Hill Hospital.

He was fond of sea and woods, and in summer got never-failing recreation from evenings and Sundays at Marion, spent chiefly on the water, fishing for bluefish or squeteague. Many fall vacations were spent in the Adirondacks, often with R. H. Fitz, taking long walks over mountain trails. His place at Eastham on Cape Cod, had a particular charm for him. His principal occupations were walks along the ocean dunes or the bay, fishing or clamming expeditions along the shore, and searches for arrowheads in the plowed fields. The coastwise shipping, the activities of the weir fishermen, the wreckage along the beaches, or the changing picture of migrating fowls were sources of unfailing interest.

He died, after a heavy day's operating, in sleep, July 30, 1912.

EDWARD PEIRSON RICHARDSON, M.D.

Book Reviews.

Radium Therapy in Cancer. By HENRY H. JANEWAY, M.D. New York: Paul B. Hoeber. 1917.

An accurate and detailed description of the methods of applying radium to malignant tumors, at the Memorial Hospital, New York, is presented in this volume, "Radium Therapy in Cancer." The various forms of cancer,—the indications, methods, complications, and results,—are considered separately, for the disease in each organ must be treated as a separate problem. The use of radium emanation in increasing the efficiency of radium therapy, the principles of application and filtration, with an explanation of the physical considerations relative to the therapeutic application of radium, are described. A summary of many cases treated shows that radium, as a palliative agent in

advanced cancer, has afforded only a limited usefulness; applied over the surface of the body at a distance, however, it has been found to cause retrogression of many tumors and relief from pain. As a preliminary measure before operation, it is useful in controlling the activity of growth. It must be admitted that in many cases the temporary benefit derived from the use of radium has resulted in a later progressive extension of the disease. In treatment of the more circumscribed growths of the mucous membranes, radium performs perhaps its best service, and often a complete clinical retrogression may be obtained without the loss of a portion of the organ in which the cancer is growing. Although in many cases the cure has not been permanent, it is felt by those responsible for the work done at the Memorial Hospital that the character of the retrogressions has been so good that every opportunity should be taken to discover how far radium can be relied upon to cure primary early cancer.

Handbook of Suggestive Therapeutics, Applied Hypnotism and Psychic Science. By HENRY S. MUNRO, M.D. St. Louis: C. V. Mosby Company. 1917.

This book is in no sense a treatise on psychoneuroses, but a clear and interesting account of the author's method of using hypnotism in general practice, and the use of indirect suggestion by the physician in his handling of patients and their troubles. The author gives a good account of his method of hypnotization and of the mode of action of this means, but perhaps the best and most interesting part of the book consists of the chapters on the more general relations of the physician with the patient and the community, such as the ones on personality, environment, moral stamina, and self mastery, which show the marks of a man alike to the wider relations of medicine to society, and give evidence of thoughtful consideration of these relations.

The account of psychoanalysis and of the Freudian theories, while hardly as full as we might like to have them, gives the general outlines fairly well and points out some of the most serious objections to the use of the method of psychanalysis as a therapeutic measure. Most men of experience will agree with the writer that suggestion plays a large part in the success of this method when it is successful.

Wishfulfillment and Symbolism in Fairy Tales. By DR. FRANZ RICKLIN. Translated by DR. WILLIAM A. WHITE. New York: Nervous and Mental Disease Publishing Company. 1915. Nervous and Mental Disease Monograph No. 21.

This series of monographs has made accessible to American physicians many valuable books both by our own writers and those of other countries. The present volume is one which is exceedingly interesting and even entertaining. It is concerned with the application of the well known Freudian symbolism and method of psychological analysis to fairy tales. The writer's main point may be briefly expressed from his statement that in mythology the construction of symbols comes about in a different manner from that seen in psychopathology, first through personification, and then a new factor is added to the symbol, which displays some power or effect, and this is then transferred to the symbol.

Even if one is not ready to accept the full claims of the followers of Freud to have founded a new and well nigh universal system of psychology, nevertheless the reader of this book cannot help gaining from it a new point of view and insight into processes of thought as shown in folk tales.

Blood Pictures. By CECIL PRICE-JONES, M.D. New York: William Wood and Co. 1917.

This volume is an introduction to clinical hematology. It is a guide for the interpretation of reports on blood examinations and is of value to practitioners in making diagnosis. Part I deals with the collection and examination of material. The blood examination is explained; the collection of samples of blood, the enumeration of red and white cells by means of Barker's hemocytometer, the estimation of the hemoglobin percentage, film preparations, and the examination of stained films. Blood cells, abnormal red cells, white cells,—lymphoid and leucoid,—and abnormal white cells, are described. Examples are given of various types of blood pictures, both normal and incomplete.

Part II. shows the value of blood pictures in the diagnosis of disease, such as bacterial infections, protozoal infections, blood diseases and malignant disease. The appendices deal with staining methods, the measurement of the size of red cells, and the phylogenetic diagram of blood cells.

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AMERICAN RESEARCH ON TRENCH FEVER.*

WHEN the first meeting of the Medical Research Committee of the American Red Cross was held in October, 1917, it was recommended by Major Richard P. Strong that an investigation of the prevalence of trench fever and the importance of attempting to discover the method of transmission of this disease, be conducted. This recommendation was made as a result of several months' study of the problems relating to the prevention of infectious diseases occurring in the Allied armies on the Western Front. Since it was admitted that a loss of man-power was already occurring in these armies and likely to increase in other armies from the transmission of this disease, it was requested that a statement regarding the committee's knowledge of trench fever be submitted at the next meeting. In November, 1917, therefore, it was voted that such investigation should be undertaken and a committee consisting of Majors Cushing, Swift and Strong was appointed. Major McNee, R.A.M.C., was subsequently asked to become an honorary member of this committee.

We now have the full report of the investigations pursued and the conclusions reached by those men and their colleagues. The report has been fittingly dedicated to the "members of the Medical Staffs of the Allied Armies who have done so much during this war for the relief of human suffering." Up to this time trench fever had been prevalent for three years; but partly on account of the lack of medical officers, and partly on account of the difficulty of securing volunteers necessary for study, no extensive investigations had been made. Thus it became the privilege of the Medical Research Committee of the American Red Cross and of certain members of the American Expeditionary Forces to organize and carry out these exceedingly important experiments. The necessity for the work having been established beyond doubt, the next step was the problem of obtaining volunteers for experiment and the funds for the purchase of hospital equipment. In January the hospital was ready and sixty of the total eighty-two volunteers were ready for subjection to the infection.

Too great praise cannot be given to these men who offered themselves as subjects willing to endure pain and sacrifice to relieve their fellow men. The men, the report emphasizes, were all healthy and robust at the time the experiment was tried. Though the actual risk, as far as life and death are concerned, has not been as great as that of the men who, under Reed in Cuba, contributed during the Spanish War so much to the discovery of the method of transmission of yellow fever, nevertheless the spirit of unselfishness and coöperation among these volunteers of the American Expeditionary Forces went far towards contributing to the success and accuracy of the experiments. To the honor of the Medical Corps of the American Army it may be told that it is probably the first time in history that an infectious disease has been studied in such a thorough manner. The disease has been produced by different methods in sixty-two instances.

The most important facts demonstrated by the work of the Research Committee are that trench

* Report of Commission, Medical Research Committee, American Red Cross. Prepared for publication by Richard P. Strong. Oxford University Press, Frederick Hall, 1918.

fever is a specific infectious disease, not a modified form of typhoid fever or of paratyphoid fever and the disease is transmitted naturally by the louse. Much that is interesting concerning the views and work of previous investigators in their attempts to differentiate this infection from other infections is discussed in Chapter III. of the Report. Chapters I. and II. give a brief idea of the organization and planning of the research and the symptoms and course of the disease. Chapters III., IV., V. and VI. deal respectively with the specific value of trench fever; the occurrence and nature of the virus of trench fever; its etiology; and the method of transmission of trench fever. In each of these four chapters previous views and investigations are carefully compared with the present investigations of the commission. The remaining chapters give details of the blood-transmission experiments and conclusions reached from them; of the bacteriological study of blood, feces, and urine in trench fever cases and of the volunteers employed before infection; of the agglutination reactions for organisms of the enteric group in spontaneous and experimentally produced trench fever; of the first group of transmission experiments with pediculus humanus, linn., and the conclusions reached from them; of the second group of transmission experiments with pediculus humanus, linn., and the conclusions reached from them; of the experiments regarding the filterability and thermal death-point of the virus and the infectivity of the excreta in trench fever; clinical investigations regarding the experimentally produced cases of trench fever, and clinical histories and temperature charts.

The report is replete with references from medical and surgical journals and a great many plates, showing the methods of infecting the lice and the volunteer subjects with the virus, aid in making the descriptions clear. The eighty complete case histories are each accompanied by the clinical chart, and various other charts are shown illustrating the different types of fever which developed as a result of different methods of inoculation. Tables illustrating the blood-transmission experiments, agglutination charts and tables, and tables illustrating groups one and two of the louse-transmission experiments are printed in full.

The fact that trench fever was unknown to the medical profession before the present war and that it stands second on the list of diseases causing wasting from the fighting line prove that the results of the work of the Medical Research Committee of the American Red Cross, in discovering the cause and transmission of the virus, have contributed most materially to the progress of preventive medicine.

STANDARDS OF THE DEPARTMENT OF HEALTH AND SANITATION OF THE UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION.

A BULLETIN recently issued by the United States Shipping Board Emergency Fleet Corporation describes the standards of the Department of Health and Sanitation. This corporation has undertaken a tremendous industrial task, which could not be accomplished efficiently except under hygienic and sanitary conditions most considerate of the health and vitality of the working force.

Many employers have found it advisable to determine the condition of health of a worker at the time he enters the employ of the company and at intervals afterwards. This procedure benefits both the employer and the workman. Physical examinations properly carried out will bring to the attention of the examining physician any communicable disease with which the applicant might be afflicted and which might be communicated to his fellow-workmen. Applicants for employment suffering from minor ailments or condition of ill health should not necessarily be excluded from employment, but should be given work for which they are best suited.

Shipyard managers are requested to conform to the regulations of the local and State health authorities in the control of communicable disease by allowing no employee to return to his work after an illness until the danger of conveying infection has passed. In the control of venereal disease, active assistance will be given to any shipyard management desiring it. Vaccination for smallpox is compulsory and for typhoid and paratyphoid optional. Minor ailments, cuts, and scratches should be given immediate medical treatment. For the surgical treatment of wounds the use of dichloramine-T and chlorocosane is recommended.

The following staff is considered the minimum requirement for the proper treatment and care of employees in the shipyard plants:

Plants employing under one thousand men should have a first-aid attendant or trained nurse for each shift and two doctors on call. The first-aid attendant should have taken a regular course in first aid. In plants employing over one thousand men, a resident physician should be employed and should be furnished with such assistance as the size of the plant and work to be done demand. In plants where a dispensary is required it is desirable to have a physician resident in the dispensary. Plant physicians must have a license to practise medicine in the State in which the plant is located. First-aid treatments may be rendered by nurses or attendants. All redressings should be overseen by a licensed physician and first-aid treatment should be supervised whenever possible.

Three types of facilities for the treatment of injuries and illness at shipyards are discussed in this bulletin: (1) The first-aid station; (2) a dispensary, and (3) a plant hospital. The first-aid station is the unit recommended for plants employing up to one thousand men. In no case should first-aid treatment be given in the yard office. A specially assigned room should always be provided for the first-aid treatment. A dispensary is necessary for plants employing from 1,000 to 2,500 men. A first-aid station, located at a convenient point within the grounds, should supplement the dispensary for each 2,500 men employed. The need of a plant hospital depends largely upon available hospital facilities in the vicinity. A plant employing a relatively small number of men, and in a situation remote from adequate hospital facilities, would be much more dependent upon its own resources than a plant employing many more men, but with nearby hospital facilities immediately available. With this consideration in mind, each plant should make adequate provision for the hospital care of its injured employees.

In regard to sanitary problems, restaurants and lunch rooms, and the question of housing, the standards described in this bulletin are the highest. The first consideration is the health and comfort of the employees, thereby increasing the industrial efficiency of the entire shipyard organization.

STATE REGULATION OF THE PRACTICE OF MEDICINE.

THE American Medical Association has issued recently a pamphlet entitled, "State Regulation of the Practice of Medicine," by Frederick R. Green, A.M., M.D. The author reviews the problem of medical legislation, and gives reasons why the function of regular medical practice should be transferred from legal to public educational authorities. In spite of the efforts of the medical profession to enact laws for the welfare of the public, it has not been able to maintain its standards, for almost every cult, however unscientific and absurd, has found, after sufficient effort, legal support for its practice.

This pamphlet gives a brief survey of the history of efforts to restrict to certain individuals the power of treating the sick. Medical legislation has been restrictive in this country, and may be divided into four epochs. In colonial days the practice of medicine was in general unrestricted. Beginning in the 19th century, the public left examining and licensing to members of the medical profession. In the third period, from 1840-1852, former legislation was repealed, partly because of the growth of sectarianism. The fourth period, beginning in 1870, is characterized by the development of modern medicine, surgery and bacteriology. Professional competition increased, and the need of professional standards was emphasized. The State was given the power of examining and licensing. This involved many decisions by the courts, which were often influenced by sectarian prejudices. This step has led to the establishment of legal principles, which, whether acceptable or not to the medical profession, are final and irrevocable.

The attitude of the medical profession is shown by the fact that only about ten per cent. of physicians take interest enough in this legislation to give it active support. Protection of the public against incompetent practitioners is a public function, and the burden and expense of securing this protection should not be left to the medical profession. The attitude of the public has been a disinterested one, because it has thought, quite unfairly, that medical practice acts were enforced in the interest of physicians rather than for the sake of the people. The responsibility of restricting treatment of the sick should be left to those whom it con-

cerns most vitally. The public, acting through the educational authorities of the State, should establish one standard for all in regulating medical practice acts for its own protection. Tennessee, Kansas and Illinois have already taken steps in this direction. These efforts promise for the future a solution of this problem and a readjusting of responsibility, which will create a better understanding between the medical profession and the public.

MEDICAL NOTES.

SANITATION OF RURAL WORKMEN'S AREAS.—A recent issue of the United States Public Health Report contains a valuable report on the sanitation of rural workmen's areas, with special reference to housing. The information contained in this report is essentially practical and is particularly useful as a guide for men engaged in welfare supervision. War conditions have made the housing of workmen a difficult one, for industries have been enlarged suddenly and have made the rapid establishment of industrial plants and residence areas a necessity.

Various aspects of the problem are considered in this report. The selection and preparation of village and camp sites, the laying out of streets, and methods of protecting the water supply from pollution are discussed in detail. In housing wage earners in labor camps, portable houses, of wood, metal or asbestos material, have been found more satisfactory than tents, railway cars and other types of housing. The advantages and cost of various materials and types of construction are considered in detail. Methods of securing sanitary conditions of ventilation, temperature, lighting, house drainage and plumbing, and the control of vermin are explained. Useful diagrams, plans, and photographs are included.

The advisability of adopting local sanitary legislation in establishing new residence areas is suggested in this report. The full-time services of health officers and the strengthening of existing public health organizations are necessary in coping with the present conditions, arising from the unusual industrial activity caused by the war.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about two hundred and fifty dollars, will be made on July 14, 1919, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1919.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award.

No Alvarenga prize for 1918 was awarded.

FRANCIS R. PACKARD, *Secretary*,
19 South 22nd St., Philadelphia, Pa., U.S.A.

AMALGAMATION OF MEDICAL JOURNALS.—The *Medical Review of Reviews* announces that it has just purchased the third oldest medical journal in America—the *Buffalo Medical Journal*—founded seventy-four years ago by Dr. Austin Flint, and published regularly ever since.

The *Medical Review of Reviews* is to absorb the *Buffalo Medical Journal*, beginning with its January, 1919, issue. This is the third publication which the *Review* has purchased during the past few years.

The *Medical Review of Reviews* further announces that it will be greatly increased in size beginning with the January, 1919, issue, but that the subscription price is not to be increased.

WAR NOTES.

HONORARY DEGREES TO VISITING SURGEONS.—Honorary degrees were conferred on November 6 by the New York Fellows of the American College of Surgeons upon seven distinguished

surgeons from England, France and Italy. Major-General W. M. Ireland also received an honorary degree. The foreign surgeons receiving degrees were Col. Sir Thomas Miles, Col. George E. Gask and Maj. George Grey Turner, of the British Army; Lieut.-Col. Raffaele Bastianelli, of the Italian Army, and Majs. Pierre Duval and Adrian Piollet, and Dr. Henry Becklere, of the French Army.

ADVANCES IN WAR SURGERY.—Recent advances in war surgery were discussed at the College of Physicians and Surgeons on November 6, by the six distinguished surgeons of England, France and Italy who are touring the country. Lieut.-Col. Raffaele Bastianelli of the Italian Army described new methods of treating cerebral wounds, by which, he said, 52% of all patients are saved.

WAR DEPARTMENT AUTHORIZES EXPENDITURES FOR HOSPITALS.—Announcement has been received from Washington that the War Department authorized the expenditure of $685,000 for alterations on buildings which have been secured for use as army hospitals, including the Commonwealth Armory of Boston. It is reported that this armory will be made over into a hospital containing 1,000 beds and that the War Department has authorized the construction division to begin work at once. The changes are estimated at about $70,000.

A CALL TO ALL NURSES.—The American Red Cross has issued a special call to all nurses of New England to fill out the questionnaires that are being issued. Nursing surveys up to the present time have been very inadequate, and it is the opinion of the government that to do intelligent work we must know what our complete resources are. New England has supplied only 57% of its quota of nurses for military service. Miss Elizabeth Ross, director of nursing, New England Division of the American Red Cross has charge of this work.

RED CROSS NEEDS 9,000 MORE NURSES.—The American Red Cross will need more than 9,000 nurses in addition to those already enrolled, before January 1, according to a report made by the Red Cross War Council. More than 30,000 Red Cross nurses are already enrolled, 17,000 of whom are overseas.

COMMISSIONS IN MEDICAL RESERVE CORPS.—The following commissions were announced on October 28:

Captain: Dr. Henry Melville Chase, Boston; Dr. Arthur M. Dodge, Boston; Dr. Lowrie B. Morrison, Boston; Dr. John E. Overlander, Springfield; Dr. Victor A. Reed, Lawrence; Dr. George H. Stone, Boston; Dr. Joseph E. Brindamour, Holyoke; Dr. Dixi G. Hoyt, Leominster; Dr. Charles B. Hussey, Franklin; Dr. James Nightingale, Worcester; Dr. George H. Parker, Hanover, N. H.; Dr. Arthur H. Ring, Arlington Heights.

First Lieutenant: Dr. Ernest S. Bisbee, Boston; Dr. Raymond P. Bonelli, Brookline; Dr. Thos. E. Buckman, Boston; Dr. Franklin C. Cassidy, Medford; Dr. Joseph G. Hegerty, Boston; Dr. M. F. McMahon, Worcester; Dr. Z. A. Molica, Boston; Dr. Edward F. Regan, Framingham; Dr. Winthrop D. Stacey, Charlestown; Dr. Karl Brooks Sturgis, Fairfield, Me., Dr. John D. Taylor, East Boston; Dr. James E. Waters, Gardner.

INVESTIGATION OF TEN THOUSAND RECRUITS WITH DOUBTFUL HEART CONDITIONS.—The second report on the examination of recruits with doubtful heart conditions has been sent out by the National Hospital for Diseases of the Heart in London. This has been published in the *British Medical Journal* of September 7, 1918. In the case of every recruit an inquiry for a history of the most frequent ailments associated with heart conditions was conducted. Rheumatic fever was present in 19.2 per cent. of the cases; scarlet fever in 21.8 per cent.; influenza in 56 per cent.; chorea in 2.6 per cent.; "rheumatism" in 16.1 per cent.; tonsillitis in 22.1 per cent., and strain in 27.1 per cent.

ARMY ANTHROPOMETRY AND MEDICAL REJECTION STATISTICS.—An analysis of army anthropometry and medical rejection statistics has been made recently by Frederick L. Hoffman, of the Prudential Insurance Comany, in the interests of the Committee on Anthropometry of the National Research Council. Deficiencies in the present system of examination of recruits, both from the military and scientific standpoints, are pointed out. Examinations made by line officers who are without especial medical training have been often superficial and inaccurate. Under the selective draft, local boards and camp

surgeons have varied in their strictness in observing regulations. Medical rejection standards differ in time of peace and war.

It is to be regretted that the recruiting data furnished by the present war are collected under such varied standards and conditions that they are valuable for military purposes only and cannot be utilized for scientific research. A survey of recruiting statistics of the principal foreign countries shows a wide variation in both the medical causes of rejection and in the physical proportions of recruits. It is the purpose of this investigation to urge a more strictly scientific method of examination.

ACTIVITIES OF THE RED CROSS.—The annual meeting of the Metropolitan Red Cross Chapter was held at 142 Berkeley Street, with Allston Burr presiding. The total membership this year, ending July 1, was 339,814, a gain of 290,909 over the previous year. Nineteen branches have been added, making a total of 39 and 108 auxiliaries. The work of this year is represented in a total of 4,126,464 articles All but 100 of the 3,000 workers each month are volunteers. More than $41,000 has been raised by the schools. During the year the chapter received $155,596 from membership fees, designated by Washington to be used for administrative expenses. Of this amount the chapter refunded to its branches $48,742 for their expenses. This left $106,853 to be used by the chapter itself. Thus it will be seen that the income from membership fees more than covers all administrative expenses.

The amount received from the chapter from the first war fund was $504,033, in addition to which it received during the year, in donations and from the sale of materials, $120,129 to be used for relief purposes.

The education department had 263 classes, with a total enrollment of 3,968. The Women's Volunteer Motor Detachment, from July 1, 1917, to July 1, 1918, carried a total of 4,479 patients and made 8,582 calls for the Instructive District Nursing Association and the Home Service Section.

In November, 1917, four months after the chapter workroom for surgical dressings was started, about 60,000 surgical dressings were made. In April of this year the total of 80,000 dressings a day was reached, about 2 000,000 for the month, including those for base hospitals, evacuation hospitals and first line dressing stations.

The Comfort Kit Department, from July, 1917, through June, 1918, produced 44,080 soldiers' kits, 27,546 sailors' bags, and 8,944 miscellaneous bags. The Sales Department, during the fiscal year, sold 73,186 pounds of wool and 84,872 garments. In the Sewing Room there has been an average attendance of 233 workers, representing 6,302 days' labor in all. The total number of articles made was 38,910.

The Home Service Department, the largest in the Chapter, has had referred to it for some service, a total of 4,632 families prior to July 1, 1918.

The Bureau of Benefits and Entertainments has accepted about $180,000. The Red Cross Lunch Room and Tea Room brought the Chapter $12,832; the Flower Show, $7,675; the Roosevelt Lecture, $4,852; the Silver Thimble Fund, more than $6,000; the Park Riding School Show, $3,058.

VITAL STATISTICS AFFECTED BY THE WAR.—The war is continuing with the loss of about 7,000 lives a day in European countries. But this loss is not all due to the Army. For all of Europe it is estimated that the potential loss in births is ten to twelve millions. This is a serious situation. It involves a figure of nearly 2% of the total pre-war population of England and Wales, and in Ireland and Scotland it involves 1% and 1¼% respectively. Not only the fact that there are large numbers of adults lost in the camps and on the battlefields, but the absence of men has reduced the birthrate to a considerable degree. In 1917 the total number of births in England was 670,000, the lowest since 1858; but during the first half of 1918 this figure has improved.

Sir Bernard Mallet, Registrar General of England, calls to our attention some flaws in the vaunted efficiency and organization in Germany. One of the important groups of figures in such a consideration is that related to infant mortality, and here the General Powers make the least creditable showing. Statistics are available for two periods of twenty years each, 1886-1895 and 1896-1915. The relationships are best observed in the following tabular form:

INFANT MORTALITY OF EUROPEAN COUNTRIES.

COUNTRY	1906-1915	1886-1895
Norway	68	97
Sweden	74	104
Ireland	92	98
Denmark	103	136
Switzerland	108	160
England and Wales	113	148
Scotland	113	128
Netherlands	115	170
France	122	168
Belgium	139	163
Italy	144	190
Spain	156	192
Prussia	164	207
Wurtemberg	165	255
Saxony	186	281
Austria	196	246
Bavaria	204	276
Hungary	205	250

The last six places in both tables, it will be noted, are held by the Central Powers countries.

Dr. Mallet, in discussing points of view from which infant mortality may be looked at, calls attention to the fact that the low rates go with countries with considerable shore line, while the high ones are in inland divisions. Low mortality rates are associated in most instances with a low birth rate and higher mortality in the cities; but baby saving is better practised in the cities and mortality is highest in the rural sections.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending November 9, 1918, the number of deaths reported was 264 against 236 last year, with a rate of 17.55 against 15.93 last year. There were 36 deaths under one year of age against 26 last year.

The number of cases of principal reportable diseases were: Diphtheria, 32; scarlet fever, 16; measles, 7; whooping cough, 7; tuberculosis, 39.

Included in the above were the following cases of non-residents: Diphtheria, 11; scarlet fever, 1; tuberculosis, 3.

Total deaths from these diseases were: Diphtheria, 1; whooping cough, 1; tuberculosis, 17.

Included in the above were the following non-residents: Tuberculosis, 3.

MASSACHUSETTS STATE BOARD OF CHARITY.—The thirty-ninth annual report of the State Board of Charity of Massachusetts for the year ending November 30, 1917, has been issued. The general work of the Board is divided into statistics concerning the number of patients admitted, their condition, the number of visits made and the total expenditures of each hospital and sanatorium. The report contains statistics of private charitable corporations of the State and their scope of assistance. There is also a description of the almshouses of the State, and statistics of poor relief.

PROGRESS OF INFLUENZA EPIDEMIC.—There were but eight new cases of influenza among the 21,000 sailors of Greater Boston schools and stations on November 5. The total number of cases in the Navy up to date from August 28 is 4,004. Many of the men were voluntarily vaccinated with the anti-pneumonia vaccine. The local Navy doctors who are to conduct the official investigation for the Navy Department as to the cause of influenza and how to spread it, are to use the big Naval Hospital at Bumkin Island, Hull Bay.

There are only six new cases of influenza at the First Naval District. This included the 21,000 sailors of Greater Boston and vicinity. The Army had no deaths and but one new case.

The epidemic in New York took another leap on November 8, when 614 more cases were reported than the day before, the total of new cases being 1,061. The Health Commissioner expressed the belief that the increase was due to the failure of physicians to make full reports.

Mr. Henry B. Endicott, chairman of the emergency health committee, expressed unstinted praise for those who aided in the fight against the recent grip epidemic. He pays a tribute to the State Guard and the William A. Brooks Open-Air Hospital at Corey Hill, which besides other institutions at Gloucester, Ipswich, Haverhill, Lawrence, Waltham, Barre and Springfield, the State Guard policed. He also praised Dr. Eugene H. Kelley, State Health Commissioner; Dr. William F. Draper, Federal Health Officer; Adjutant General Stevens and others, including the work of all the nurses.

MONTHLY BULLETIN OF THE HEALTH DEPARTMENT OF THE CITY OF BOSTON, AUGUST, 1918.—The statistics for 1917 in the City of Boston show a birth rate of 25.7 per cent. and a death rate of 16.47 per cent. of the total population.

The Bulletin states that there is a nation-

wide endeavor to control the spread of venereal diseases by proper propaganda in the form of literature, free dispensaries, and public instruction.

An important investigation was made by the Bureau of Entomology to discover the reasons for infestation of candy by insects. It was found that the insects are brought into the establishments in the nuts used in the candy. Another investigation on anthrax was followed up in the case of human infection where the source was found to be shaving brushes made from horse hair and introduced into abrasions of the skin in shaving. It is urged that manufacturers sterilize their brushes or where brushes are used that contain no trade mark, the buyer should sterilize his own brush before using.

The bulletin shows a total number of deaths for the month of August of 834 as against 895 in the corresponding period last year; total visits of nurses to be 5,769; a number of deaths from communicable diseases, and a large number of bacteriological examinations, food, milk and sanitary infections.

WORK OF THE NURSES DURING THE EPIDEMIC.—In recognition of the excellent work done by the New England nurses during the epidemic of Spanish influenza, the following letter has been published in the daily press:

"As the division director of nursing for the Red Cross of New England, I should like to state how much the Red Cross appreciated the splendid response of the nurses in this district to the call during the epidemic.

"Four hundred graduate nurses went into the emergency service through this office. Some into the military, some to the local hospitals, some to help with the district work, and others to the stricken cities and towns all over New England.

"The military nurses serving abroad could give no better service than did these women who took their lives in their hands and cared for the stricken people of this community.

"We have lost a number of nurses. At present we do not know how many, but we know that it is quite a large per cent. This was unavoidable, as the nurses were all of necessity overworked, and were unable to take care of themselves while on duty.

"The Red Cross also owes a great debt of gratitude to the women who came to the front to assist the nurses. Hundreds of women all over New England, those who had taken the home nursing courses and others who had no training volunteered, and did splendid work wherever they were sent.

"We feel that every nurse that died in this service should have a gold star placed in the service flag, for she certainly died in the service for her country. ELIZABETH ROSS,
Director Bureau of Nursing, N. E. Division, American Red Cross."

NEW ENGLAND NOTES.

BOARD OF HEALTH OF PORTLAND, MAINE.—The report contains a list and definition of a number of important public health rules pertaining to the care of milk, the proper use of barber shops, and other sanitary measures instituted by the Board of Health for the safeguard of the public health. The total death rate is 15.45 per cent. and the total birth rate is 21.69 per cent. There were 58 cases of typhoid fever, a decrease in the total from the year 1916. The efficiency of the Health Department has been greatly improved by the appointment of a city bacteriologist. The report on the prevalence of tuberculosis for the years 1909 to 1917 shows a gradual decrease, amounting to 57 deaths per 100,000 population as compared with 77 in 1909. Great activity is displayed in the inspection of meat and produce, and milk, and subsequent fines and penalties have been imposed. It is the aim of the City of Portland to save this tremendous waste in human life by getting at the foundation of the causes of physical disability.

NEWPORT HEALTH REPORT.—The annual report of the Board of Health of Newport, R. I., for 1917, shows a high standard of health and sanitary conditions. In order to cope with the city's sanitary problems, which have increased because of the establishment of military cantonments and naval stations, the State Board of Health requests the United States Public Health Service for the services of a medical officer during the continuance of the war. To safeguard the public from the sale of contaminated milk, a Citizens' Milk Commission was appointed to inspect milk and regulate its distribution. A census was taken of wells and cisterns. In March, appropriation was made for the purchase of a light ambu-

lance for transporting contagious cases; since that date, 395 cases have been transported. The medical inspection of schools has been carried on effectively by four physicians, and the work in the bacteriology laboratory has been extended. The report includes vital statistics and mortuary tables and reports of contagious diseases.

Obituary.

EDWARD BRADFORD CRAGIN, M.D.

Dr. Edward Bradford Cragin, who was for many years a leading New York physician, died recently of pneumonia. Dr. Cragin was prominent as an obstetrician and gynecologist in New York City and for more than fifteen years was Professor in the College of Physicians and Surgeons at Columbia University.

He was born in Colchester, Conn., the son of Edwin T. Cragin and Ardelia E. Sparrow. In 1882 he was graduated from Yale University and in 1886 from the College of Physicians and Surgeons. In 1895 he became secretary of the College of Physicians and Surgeons and continued in that office for four years when he became a professor in his specialties.

Among the many institutions for which he was attending or consulting gynecologist were the Sloane Hospital for Women, the City Maternity, Presbyterian, Roosevelt, Lincoln, Italian, New York Nursery and Child's Hospitals.

He was 59 years of age and had practised medicine since 1886. A wife, two daughters and a son survive him.

Miscellany.

GOVERNMENT DRUG ORDERS.

Reports last spring stated that at that time all other developments in the drug and chemical trade had been overshadowed by the huge wholesale orders of the United States Government for all sorts of pharmaceutical preparations. One of the largest contracts was for 17,500,000 tablets of quinine sulphate at $5.73 per thousand. Each tablet contains 200 milligrams.

"The Government's total quinine order calls for 20,000,000 three-grain tablets, which will require in all 125,000 ounces of quinine, or 7812 pounds, equal to more than four tons.

In addition to the above, contracts awarded by the Government include 300,000 tubes of morphine sulphate, 60,000 tubes of cocaine hydrochloride and 400,000 324-mgm. tablets salicylic acid. The awards will keep manufacturers busy for over a year.

The drug and chemical trade has manifested the deepest concern over the action of the War Trade Board in restricting importations of many nonessential products and also in its prediction that still further restrictions are about to be imposed. This has compelled consumers in various lines to run to cover wherever possible.

On the whole the market has been subjected to a greater number of advances than declines. Far Eastern drug products, such as camphor and menthol, botanical drug products, spice products, gum aloes, rhubarb root, licorice root, shellac and sandalwood oil and eucalyptus, all have been subjected to numerous upward price revisions of more or less importance. A good number of South American products also have participated in the general advances in the market. Increases of a substantial character having occurred in the price of all grades of carnauba wax and canary seed. Products of the Mediterranean are very firm, although there has been a noteworthy cut in gum opium, the most important item in the latter category.

The rapid ascent of camphor has been the outstanding feature of the general market, outside of the orders placed by the Government. A net jump of 13 cents additional has been named by domestic refiners during the interval of a month, establishing the market on the bulk basis of $1.11½ a pound. The Japanese syndicate in control of camphor has put up the price of the crude to levels corresponding with the current quotations for the refined, and it is now freely admitted that supplies are not now available in sufficient quantities to cover all the requirements of the consuming trade.

In the endeavor to conserve tonnage for a successful prosecution of the war numerous important drug and chemical products were entirely prohibited from entrance into the coun-

try. This list included such important products as pyrites, all acids, citrate of lime, muriate of ammonia, coal tar distillates, fusel oil, salts of soda, excepting cyanide and nitrate of soda, sumac, sulphur, olive oil, perfumery, cosmetics and toilet preparations.

The greatest reflection in the New York market as the result of the prohibition of further imports of the products enumerated was in the precipitate upward movement in prices for citric acid, which became nothing short of sensational. The manufacturers of this product in consequence of the unsatisfactory outlook over future importations of citrate of lime raised their spot quotations 7 cents a pound establishing the market on the basis of 82½ cents a pound for the crystals. This advance was followed by a rise in the second hand quotations for the acid to a level of 95 cents and $1.00 a pound. In addition to the rise in the domestic it was reported the cost of bringing in the foreign has risen to a level of 86 cents cost and freight. The various citrates were raised from 2 to 23 cents a pound in sympathy with the upswing in citric acid, making the revised quotations for iron citrate $1.00; iron and ammonia citrate, 90 cents; iron phosphate, 90 cents; iron pyro phosphate, 95 cents; potash citrate, $1.70; and sodium citrate, 85 cents.

The various tartrates also have been subjected to sharp upward revisions, owing to further strictures on the importations of argols from France and Italy. A net advance amounting to 2 cents a pound was named on cream of tartar to a basis of 56½ cents a pound for the powdered and 57 cents for the crystals.

The cut of close to 33½ per cent. in the quotations for wood alcohol furnished one of the sensations of the drug and chemical trade since our entrance into the world war. Official quotations are those permitted under Government control, and make for a reduction of 47 cents in the 95 per cent. to a basis of 90½ and 91 cents a gallon, and 93 1-2 and 94 cents for the 97 per cent. The pure grades, or Columbian methanol, are held at 97½ and 98 cents a gallon, while methyl acetone is held at 97½ and 98 cents a gallon. The drastic cut in prices comes as the result of the Government's commandeering of all production of wood alcohol and by-products in the endeavor to secure supplies of methyl acetone to be utilized in aeroplane construction.

Bismuth metallic was raised to $3.50 on a contraction in shipments from Bolivia. This advance was followed by a jump in all bismuth preparations, sub-nitrate being 25 cents higher at $3.25; sub-gallate 25 cents higher at $3.50; sub-iodide 30 cents higher at $5.35; sub-carbonate 25 cents higher at $3.50; and axychloride 25 cents higher at $3.55.

The quicksilver market has been steady, despite the fact that the Government has requisitioned 40 per cent. of the total output of the mines in California at a price of $105 a flask. The remaining 60 per cent. of the output carries no restrictions and agents for producers have been maintaining their asking quotations on the level of $125. Another source of drain on the available supplies of quicksilver is the constantly increasing demand for the mercurial preparations. One contract for 20,000 worth of mercuric acid was awarded by the Navy Department.

Progress in the domestic manufacture of some of the blood medicines formerly monopolized by Germany has resulted in the naming of lower prices on salvarsan. The present quotation is $2.75 per ampule, which contrasts with a quotation of $14.00 @ $15.00 per ampule, which was the price named for some of the goods which were brought over on the Deutchland on her eventful passage to this country. A contract for 18,000 ampules of salvarsan was awarded by the United States Government, but a small quantity over and above the requirements of the Government was offered by the manufacturers to hospitals and physicians at 2.75. The amount so available is limited, however, and the makers are forced to pro-rate six ampules among as many physicians where it was formerly customary to furnish each physician with six ampules.

Foreign botanical drug products have all been featured by firm prices. Advances have been scored throughout the list with gum aloes, uva ursi leaves and other foreign botanicals showing the greatest proportion of advance. The essential oil line also has been firm throughout, the principal advances having been in cassias, sassafras and geranium oils."

CLASSES FOR RECONSTRUCTION AIDES.

Boston has been honored by Surgeon-General Gorgas through his request that classes be established here for the purpose of training women to become applicants as reconstruction aides in military hospitals. Machinery has already been set in motion, and registration started at the Franklin Union for a full time intensive day course of twelve weeks, which is to be given at once, thus establishing the Boston School of Occupational Therapy.

"Authorities in Washington have been watching with keen interest the so-called reconstruction work in England, France and Canada. They believe that three kinds of curative agencies are absolutely essential to restore damaged faculties and reëstablish muscular coördination. The medical purposes to meet this need are to provide interesting occupations, a variety of muscular actions and the reëstablishment of mental powers, and it is planned to organize these three separate headings—bedside handicraft, which will lead toward an awakened interest in life; curative hospital workshops with a variety of implements which will help men to regain what the doctors call their civilian morale, and vocational reconstruction, which may be accomplished outside the hospital in institutions already equipped with the necessary facilities. All these branches of remedial work are closely related, but it is with the first that Boston people will be particularly interested, since it is occupational therapy which is to be taught here.

"In studying the history of that restless period following the Civil War, physicians, educators and all thoughtful men have noted what the state of mind of thousands meant to the Nation, the State and the home at that time. Returned soldiers could no longer find interest in the work which formerly meant a good living and contentment. Their nerve centers were shattered by the experiences they had undergone and the reconstruction was far from thorough as there was no specific study of the situation, even by the most advanced thinkers of those days. The present war has worked still greater havoc through the use of high explosives and constant cannonading which have brought about a new disease described as shell shock. Men thus afflicted, even with no actual bodily injury, must be restored through some curative agency. Moreover, there are numberless cases where, as the result of surgical operations, there is likelihood of permanent suffering unless carefully superintended physical manipulations are given.

"The proposed plan of this school offers to women a field of usefulness which many will doubtless welcome, since there is no age limit. It is such distinctly patriotic service that it will appeal to many who have felt that their influence and help counted for little. It will be readily seen that only those of the finest type can be accepted for teaching these bedside occupations which, simple as they are, may mean life or death to the patients.

"The purpose of the school is to furnish in the shortest possible time the necessary training to women who wish to become qualified for such work and to receive the appointments as reconstruction aides in military hospitals.

"The training is designed to develop not only artistic and mechanical skill and dexterity, but also ability to coöperate with every branch of a hospital in order that there may result the highest standard of efficiency in the rehabilitation to civil life of the returning soldiers.

"Applicants must be at least twenty-five years of age; citizens of the United States or of Allied countries; must possess suitable personality (this requirement is regarded as of great importance); must demonstrate some artistic or mechanical skill or training that will especially prepare them to excel in one or more of the major subjects of the course, and must be prepared to accept assignments—if appointed—for full-time service during the present war emergency, either at home or abroad. The directors of the school reserve the right to refuse admission to any applicant, or to grant admission only upon probation.

"While no definite statement can be made regarding scholarships, it is hoped that any applicant who is thoroughly qualified will not be denied admission because of embarrassment concerning tuition fees. Any applicant, therefore, who finds the tuition a decided hardship is urged to write at once to the directors. The teachers in charge of the various courses will be experts in their respective subjects and there will be expected of all pupils a high degree of excellence in all the work.

"An outline of courses is as follows: Weaving, to include hand loom, bead loom, and simple rug and mat making, simple woodwork, whittling and carving, confined to the use of a few instruments, such as the knife, chisel and gouge;

basketry, to include reed and, possibly, pine needle work; block printing, applied to paper and textiles; knitting, crocheting, needle and bead work; applied design, including the elementary principles of design bearing on the subjects taught in the course. Actual practice in teaching the required subjects in hospitals under conditions similar to those which will be met in military hospitals, will give the self-confidence and experience necessary for military hospital work.

"Certificates of graduation will be granted to all students successfully completing the course. Graduates will receive also letters of recommendation concerning their ability and personality. The school, of course, even though authorized by the War Department, cannot guarantee appointments upon graduation. It can merely state that there appears to be an urgent need for everyone who can make herself competent.

"The reconstruction aides, if appointed for service within the United States, will be paid fifty dollars per month, and sixty dollars per month for service without the limits of the United States; and if not living at a hospital, they will draw twelve dollars per month for quarters and at least one dollar a day for subsistence. They will be uniformed in the hospital and on the street, and the expense of these uniforms will have to be borne by the aides.

"It is too soon to announce the personnel of this important movement in Boston except to state that Arthur L. Williston, principal of Wentworth Institute, Walter B. Russell, head of the Franklin Union, and the public school authorities are coöperating with an advisory board made up of orthopedic and nerve specialists, and a group of women whose interest in handicraft makes them particularly desirable for such a task. There is to be a woman dean at the Franklin Union and any further information regarding the school and what it offers may be obtained there."

Correspondence.

NORMAL SALT SOLUTION.

Boston, November 8, 1918.

Mr. Editor:—

Having had a good deal of experience in preparing normal salt solution and re-agents for use in the chemical laboratory, I take the liberty of calling the attention of the readers of the JOURNAL to the fact that there is a wrong idea prevailing in some quarters to the effect that "about 900 grains of common salt dissolved in a quart of distilled water" will give a satisfactory normal salt solution.

Unfortunately the avoirdupois method of weights and measures is so notoriously deficient in scientific accuracy in the preparation of standard and normal solutions and of re-agents used in laboratories in chemical analysis. It seems to me, therefore, that for the sake of precision and for the benefit of the patient we should in all cases use the metric system of weights and measures. But before going further in the descriptions of the mechanical technic, we must have a clear idea of what a normal solution of any salt is, and then form on the definition thus given a working formula which will be a guide to any man desirous of preparing a normal solution for use in his own practice or for general clinical and chemical uses.

What is a normal solution? A normal solution is one that contains in 1000 cubic centimeters of distilled water as many grams of dissolved substance (NaCl, for instance) as are indicated by its molecular equivalent. A normal solution of potassium hydrate (KOH) contains as many grams to the liter (1000 c.c.) as the number of its molecular weight—56.1 grams to the liter of H_2O. That of sodium chloride is 58.36 grams of the salt dissolved in a liter of distilled water. The principle involved is just the same in the preparation of all normal solutions.

But practically the only normal solution that interests the general practitioner is that of sodium chloride. Some care in its preparation and preservation is necessary. The salt used must be chemically pure and the water distilled. After the process of dissolving is gone through, the solution must be filtered and the filtrate brought up to 1000 c.c. with distilled water. Then it should be kept in glass bottles the mouths of which have been plugged with cotton, the upper part of which has been singed. These precautions are absolutely necessary in a surgical clinic where the normal solution may any moment be used for intravenous injection or in hypodermoclysis.

Now, if a man wants to use grains instead of grams in the weighing of salt, he can do so by simply multiplying the molecular weight of NaCl (58.36) with the number of grains in a gram, that is, 15.5. The result will be approximately 904½ grains. This should be dissolved in 1000 c.c. of distilled water, but never in a quart. A quart, in popular parlance, is a very indefinite quantity. It may mean anything anywhere from 28 to 35 fluid ounces.

H. S. JELALIAN, M.D.

SOCIETY NOTICE.

BOSTON ASSOCIATION FOR THE RELIEF AND CONTROL OF TUBERCULOSIS.—The fifteenth annual meeting of the Boston Association for the Relief and Control of Tuberculosis will be held at 3 Joy Street, Boston, on Thursday, November 21, at 3.30 P.M. Reports will be given by Arthur K. Stone, M.D., President; and Ethel M. Spofford, Assistant Secretary. Addresses will be delivered by Eugene R. Kelley, M.D., Commissioner of Health, State of Massachusetts; and by William C. Woodward, M.D., Commissioner of Health, City of Boston.

RECENT DEATH.

EDWARD EVERETT HAMBLEN, M.D., died at his home in Bedford, Nov. 9, 1918, aged 53 years. He was a native of Windham, Me., and had been town physician and school physician. He had graduated from the Tufts College Medical School in 1898. He is survived by his widow, who was Miss Mary Pitman. Dr. Hamblen joined the Massachusetts Medical Society in 1912.